

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently amended) A semiconductor device comprising:

a flexible semiconductor chip including an element forming region where a semiconductor element is formed and an element non-forming region where a semiconductor element is not formed, each of the element forming region and the element non-forming region being provided on a front surface of a silicon substrate,

a groove formed in a portion of a rear surface of said silicon substrate corresponding to said element non-forming region, wherein said groove does not extend all the way through the silicon substrate, so that the region of the semiconductor chip that corresponds to the portion where the groove is formed is flexible, and

wherein the groove is not provided under any portion of the element forming region.
2. (Original) The semiconductor device of claim 1, wherein a plurality of said grooves are formed.
3. (Original) The semiconductor device of claim 2, wherein said grooves are formed parallel to each other.

4. (Previously presented) A semiconductor device having an element forming region where a semiconductor element is formed and an element non-forming region where a semiconductor element is not formed, on a front surface of a silicon substrate, comprising:

a plurality of grooves formed in a rear surface of said substrate corresponding to said element non-forming region; and

wherein said grooves are formed to extend in directions crossing each other.

5. (Original) The semiconductor device of claim 4, wherein said grooves are formed to extend in directions which cross substantially perpendicular to each other.

6. (Original) The semiconductor device of claim 4, wherein said grooves are formed to extend in three different directions.

7. (Original) The semiconductor device of claim 1, wherein said groove has a substantially uniform width from a bottom portion to an opening portion of said groove.

8. (Currently amended) A semiconductor device comprising:

a flexible semiconductor chip including an element forming region where a semiconductor element is formed and an element non-forming region where a semiconductor element is not formed, each of the element forming region and the element non-forming region being provided on a front surface of a silicon substrate,

a groove formed in a portion of a rear surface of said silicon substrate corresponding to said element non-forming region, wherein said groove does not extend all the way through the

silicon substrate, so that the region of the semiconductor chip that corresponds to the portion where the groove is formed is flexible, and

wherein said groove has a wider width in an opening portion than in a bottom portion of said groove.

9. (Currently amended) A semiconductor device comprising:

a flexible semiconductor chip including an element forming region where a semiconductor element is formed and an element non-forming region where a semiconductor element is not formed, each of the element forming region and the element non-forming region being provided on a front surface of a silicon substrate,

a groove formed in a portion of a rear surface of said silicon substrate corresponding to said element non-forming region, wherein said groove does not extend all the way through the silicon substrate, so that the region of the semiconductor chip that corresponds to the portion where the groove is formed is flexible, and

wherein said groove has a bottom portion with a curved surface.

10. (Currently amended) A semiconductor device comprising:

a flexible semiconductor chip including an element forming region where a semiconductor element is formed and an element non-forming region where a semiconductor element is not formed, each of the element forming region and the element non-forming region being provided on a front surface of a silicon substrate,

a groove formed in a portion of a rear surface of said silicon substrate corresponding to said element non-forming region, wherein said groove does not extend all the way through the

silicon substrate, so that the region of the semiconductor chip that corresponds to the portion where the groove is formed is flexible, and

wherein said groove is filled with a material softer than said silicon substrate.

11. (Original) The semiconductor device of claim 1, wherein the rear surface of said silicon substrate is coated with a material softer than said silicon substrate.

12. (Original) The semiconductor device of claim 1, wherein a plurality of said element forming regions are isolated from each other, and said element non-forming region is a region sandwiched between said element forming regions.

13. (Previously presented) A semiconductor device module comprising
a semiconductor device bonded to a bonding substrate, wherein said semiconductor device has an element forming region where a semiconductor element is formed and an element non-forming region where a semiconductor element is not formed, on a front surface of a silicon substrate, and a groove formed in a portion of a rear surface of said silicon substrate corresponding to said element non-forming region; and
wherein said bonding substrate is curved.

14-25. (Canceled)

26. (New) The semiconductor device of claim 1, wherein no part of the groove extends all the way through the silicon substrate.

27. (New) The semiconductor device of claim 1, wherein the region of the semiconductor chip that corresponds to the portion where the groove is formed is flexible, so that areas of the semiconductor chip where no groove is formed are not flexible.

28. (New) The semiconductor device of claim 8, wherein the region of the semiconductor chip that corresponds to the portion where the groove is formed is flexible, so that areas of the semiconductor chip where no groove is formed are not flexible.

29. (New) The semiconductor device of claim 9, wherein the region of the semiconductor chip that corresponds to the portion where the groove is formed is flexible, so that areas of the semiconductor chip where no groove is formed are not flexible.

30. (New) The semiconductor device of claim 10, wherein the region of the semiconductor chip that corresponds to the portion where the groove is formed is flexible, so that areas of the semiconductor chip where no groove is formed are not flexible.